

**Amendment to the Claims:**

1. (Cancelled).
2. (Currently Amended) A detector as claimed in claim 1, wherein the first analog time signal has a period.
3. (Currently Amended) A detector for the temporally resolved recording of detection events, comprising: as claimed in claim 1, wherein the detector has
  - a converter device, which in the operating state supplies an electrical signal when a detection event occurs;
  - evaluation electronics having:
    - at least one trigger that is coupled to the converter device and is designed to supply a trigger signal that is temporally assigned to the electrical signal,
    - at least one time signal source that supplies a first analog time signal,
    - at least a first sampler that is coupled to the trigger and is designed to provide a first momentary value of the first analog time signal, said first momentary value being temporally assigned to the trigger signal; and
  - at least one clock which is provided to measure the time in units of a uniqueness interval of the first analog time signal.
4. (Currently Amended) A detector as claimed in claim 1, wherein the detector is divided into at least two detector channels and each detector channel is assigned to in each case at least one of the triggers and at least one of the samplers.
5. (Currently Amended) A detector as claimed in claim 1, wherein the evaluation electronics have a second time signal source that supplies a second analog time signal and there is a second sampler which is designed to provide a

second momentary value of the second analog time signal, said second momentary value being temporally assigned to the trigger signal.

6. (Currently Amended) A detector for the temporally resolved recording of detection events, comprising as claimed in claim 5, wherein the  
- a converter device, which in the operating state supplies an electrical signal when a detection event occurs, and  
- evaluation electronics including:  
• at least one trigger that receives the electrical signal from the converter device and supplies a trigger signal that is temporally assigned to the electrical signal,  
• a first analog signal source that supplies a first analog time signal,  
• a second analog signal source that is coupled to the first analog signal source and supplies a second analog time signal,  
• first and second samplers that are coupled to the trigger and provide first and second momentary values of the first and second analog time signals, said first and second momentary values being temporally assigned to the trigger signal.

7. (Currently Amended) A detector as claimed in claim 4, wherein the evaluation electronics have a time calculation unit which is coupled to the first sampler, the time calculation unit being designed to calculate a time value accurate to 0.1 ns or less which is assigned to the first momentary value.

8. (Previously Presented) A detector as claimed in claim 7, wherein at least one multiplexer is arranged between the sampler and the time calculation unit.

9. (Currently Amended) An imaging device comprising a detector as claimed in claim 4.

10. (Currently Amended) A method for the temporally resolved recording of detection events, comprising the steps

- conversion of a detection event into an electrical signal,
  - generation of a trigger signal that is temporally assigned to the electrical signal,
  - sampling of at least a first analog time signal in temporal association with the trigger signal,
  - provision of a first momentary value of the first analog time signal,
- and,
- assigning the momentary value an absolute time value by consulting a clock that measures time in units of a uniqueness interval of the analog time signal.

11. (Previously Presented) The detector as claimed in claim 5 wherein the second analog time signal is phase shifted from the first analog time signal.

12. (Previously Presented) The detector as claimed in claim 11 wherein the second analog time signal is orthogonal to the first analog time signal.

13. (Previously Presented) The method of claim 10 further comprising sampling a second analog time signal in temporal association with the trigger signal and providing a second momentary value of the second analog time signal.

14. (Previously Presented) The method of claim 13, wherein the first analog time signal and the second analog time signal are phase shifted.

15. (Previously Presented) The method of claim 14, wherein the first analog time signal is orthogonal to the second analog time signal.

16. (Currently Amended) An electronics evaluator for an imaging system comprising:

- an input for at least one electrical trigger signal;
- at least one time signal source that supplies a first oscillating analog time signal; and

a means for providing a first momentary value of the first analog time signal and temporally assigning the first momentary value the at least one electrical trigger signal; and

a clock for translating the first momentary value into an absolute time value, wherein the clock measures the time in units of a uniqueness interval of the first analog time signal.

17. (Currently Amended) The electronics evaluator of claim 16 further comprising a time calculation unit which is coupled to the means for providing a first momentary value, the time calculation unit providing a time value associated with the first momentary value, the time value having a temporal resolution of 0.1 ns or less.

18. (Previously Presented) The electronics evaluator of claim 16 further comprising a second time signal source that supplies a second analog time signal and a means for providing a second momentary value of the second analog time signal and temporally assigning the second momentary value to the at least one trigger value.

19. (Previously Presented) The electronics evaluator of claim 18 wherein the first analog time signal and the second analog time signal are phase shifted.

20. (Cancelled).

21. (New) The detector as set forth in claim 6, wherein the first and second analog time signal sources are coupled by a phase locked coupling loop.

22. (New) The method of claim 10 wherein the absolute time value has a resolution of 0.1 ns or better.

23. (New) A detector for the temporally resolved recording of detection events, comprising:

- a converter device, which in the operating state supplies an electrical signal when a detection event occurs;

- a time calculation unit including:

- first and second time calculation circuits, each time calculation circuit including two analog to digital converters, the first and second time calculation circuits each determining an intermediate value of respective time signals fed to the time calculation circuits;

- a device that determines a single time value from the two intermediate values, the single time value indicating the time in an expanded uniqueness interval with a temporal resolution of 0.1 ns or less.